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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/667,426

09/23/2003

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08/03/2005

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EXAMINER

VANNUCCI, JAMES

ART UNIT

PAPER NUMBER

2828

DATE MAILED: 08/03/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/667,426

Applicant(s)

HIRUKAWA, SHUICHI

Examiner

Jim Vannucci

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 23 September 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 9-23-03.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 11-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sato(6,449,299).

Claim 11, figure 10 and column 5, lines 31-45 of Sato disclose a GaAs substrate(51), a first-conductive-type lower cladding layer(52), a lower guide layer(53), a quantum well active layer(54) composed of at least one well layer and at least two barrier layers, an upper guide layer(55) and a second-conductive-type upper cladding layer(56), one on another, wherein at least one layer(55) out of the plurality of layers is a P-based layer formed of a group III-V compound semiconductor containing P as a group V element. Sato also discloses the steps of subjecting a P-based layer to crystal growth at a first growth temperature(col. 11, lines 58-61), and above the P-based layer starting growth of an As-based layer formed of a group III-V compound semiconductor containing As not P as a group V element at a growth temperature(col. 3, lines 5-8) approximately equal to the first growth temperature. It would be obvious to thereafter further the growth while elevating the temperature to a second growth temperature so the oven can be operated continuously.

Claim 12, figure 10 discloses before the growth of an As-based layer(57), making a layer of another As-based layer(56) grown just above the P-based layer(55) at a temperature approximately equal to the first growth temperature(col. 3, lines 5-8).

Claim 13, the first growth temperature(col. 11, lines 58-61) is not less than 600 degrees centigrade and not more than 680 degrees centigrade.

Claim 14, the second growth temperature(col. 3, lines 5-8) is not less than 700 degrees centigrade and not more than 780 degrees centigrade.

Claim 15, the P-based layer(55) disclosed in figure 10 is formed of InGaAsP.

Claim 16, the As-based layer(56) disclosed in figure 10 is formed of AlGaAs.

It would have been obvious to one of ordinary skill in the art at the time of the invention to grow the layers disclosed in figure 10 at the temperatures disclosed in the specification for the respective layer materials for an improved optical device as disclosed in Sato(col. 3).

Correspondence

3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Jim Vannucci whose phone number is (571) 273-1820.

Any inquiry of a general nature or relating to the status of this application should be directed to the Technology Center whose telephone number is (703) 308-0956.

Papers related to Technology Center 2800 applications only may be submitted to Technology Center 2800 by facsimile transmission. Any transmission not to be

considered an official response must be clearly marked "DRAFT". The faxing of such papers must conform with the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The Technology Center Fax Center number is (571) 273-8300.



James Vannucci